

Infant cooing, babbling linked to hearing ability

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Infants with profound hearing loss who received cochlear implants to help correct their hearing soon reached the vocalization levels of their hearing peers, an MU researcher found. Credit: Bjorn Knetsch, Wikimedia commons.

Infants' vocalizations throughout the first year follow a set of predictable steps from crying and cooing to forming syllables and first words. However, previous research had not addressed how the amount of vocalizations may differ between hearing and deaf infants. Now, University of Missouri research shows that infant vocalizations are

primarily motivated by infants' ability to hear their own babbling. Additionally, infants with profound hearing loss who received cochlear implants to help correct their hearing soon reached the vocalization levels of their hearing peers, putting them on track for language development.

"Hearing is a critical aspect of [infants'](#) motivation to make early sounds," said Mary Fagan, an assistant professor in the Department of Communication Science and Disorders in the MU School of Health Professions. "This study shows babies are interested in speech-like sounds and that they increase their babbling when they can hear."

Fagan studied the [vocalizations](#) of 27 [hearing](#) infants and 16 infants with profound hearing loss who were candidates for cochlear implants, which are small electronic devices embedded into the bone behind the ear that replace some functions of the damaged inner ear. She found that infants with profound [hearing loss](#) vocalized significantly less than hearing infants. However, when the infants with [profound hearing loss](#) received cochlear implants, the infants' vocalizations increased to the same levels as their hearing peers within four months of receiving the implants.

"After the infants received their [cochlear implants](#), the significant difference in overall vocalization quantity was no longer evident," Fagan said. "These findings support the importance of early hearing screenings and early cochlear implantation."

Fagan found that non-speech-like sounds such as crying, laughing and raspberry sounds, were not affected by infants' hearing ability. She says this finding highlights babies are more interested in speech-like sounds since they increase their production of those sounds such as babbling when they can hear.

"Babies learn so much through sound in the first year of their lives,"

Fagan said. "We know learning from others is important to infants' development, but hearing allows infants to explore their own vocalizations and learn through their own capacity to produce sounds."

In future research, Fagan hopes to study whether infants explore the sounds of objects such as musical toys to the same degree they explore vocalization.

More information: Fagan's research, "Frequency of vocalization before and after cochlear implantation: Dynamic effect of auditory feedback on infant behavior," was published in the *Journal of Experimental Child Psychology*.

Provided by University of Missouri-Columbia

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